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contacting an engine fuel comprising sulfur-containing components with a selective liquid-phase adsorption material, wherein the adsorption material is a biogenic material; and

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separating the sulfur-containing components from the engine fuel, thereby obtaining a low-sulfur fuel.

18. (Amended) A process according to Claim 17, wherein the biogenic material is an enzyme.

Please add the following new claims:

30. (New) A process for desulfurizing a fuel and using desulfurized fuel for a motor vehicle, the process comprising:

using an adsorption unit to reduce the sulfur content of a fuel, wherein the adsorption unit is placed onboard the motor vehicle; and

regenerating the adsorption unit using heat from at least one of engine coolant and engine oil.

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31. (New) A process according to Claim 30, wherein the adsorption unit has an adsorption material that has an internal surface area of from 10 to 1600 m<sup>2</sup>/g.

32. (New) A process for desulfurizing a fuel and using desulfurized fuel for a motor vehicle, the process comprising:

using an adsorption unit to reduce the sulfur content of a fuel, wherein the motor vehicle has a main fuel line and a bypass fuel line in parallel with the main fuel line, and wherein the adsorption unit is placed in the bypass fuel line; and

using the fuel of reduced sulfur content as engine fuel only when the engine is in a lean-burn mode.

33. (New) A process according to Claim 32, wherein the adsorption unit has an adsorption material that has an internal surface area of from 10 to 1600 m<sup>2</sup>/g.

34. (New) A process according to Claim 32, further comprising regenerating the adsorption unit using heat from at least one of engine coolant and engine oil.

35. (New) A process for desulfurizing a fuel and using desulfurized fuel for a motor vehicle, the process comprising:

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*cont.* using an adsorption unit to reduce the sulfur content of a fuel, wherein the adsorption unit is placed onboard the motor vehicle; and

using the fuel of reduced sulfur content as a reducing agent for deNOxing a catalytic converter of the motor vehicle.

36. (New) A process according to Claim 35, wherein the adsorption unit has an adsorption material that has an internal surface area of from 10 to 1600 m<sup>2</sup>/g.

37. (New) A process according to Claim 35, further comprising regenerating the adsorption unit using heat from at least one of engine coolant and engine oil.

38. (New) A process according to Claim 37, further comprising using the fuel of reduced sulfur content as engine fuel only when the engine is in a lean-burn mode, wherein the motor vehicle has a main fuel line and a bypass fuel line in parallel with the main fuel line, and wherein the adsorption unit is placed in the bypass fuel line.

39. (New) A process for desulfurizing a fuel and using desulfurized fuel for a motor vehicle, the process comprising:

using an adsorption unit to reduce the sulfur content of a fuel, wherein the adsorption unit is placed onboard the motor vehicle; and

using the fuel of reduced sulfur content to desulfurize a catalytic converter in an exhaust gas after-treatment system.

40. (New) A process according to Claim 39, wherein the adsorption unit has an adsorption material that has an internal surface area of from 10 to 1600 m<sup>2</sup>/g.

41. (New) A process according to Claim 39, further comprising regenerating the adsorption unit using heat from at least one of engine coolant and engine oil.

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42. (New) A process according to Claim 41, further comprising using the fuel of reduced sulfur content as engine fuel only when the engine is in a lean-burn mode, wherein the motor vehicle has a main fuel line and a bypass fuel line in parallel with the main fuel line, and wherein the adsorption unit is placed in the bypass fuel line.

43. (New) A process according to Claim 42, further comprising using the fuel of reduced sulfur content as a reducing agent for deNOxing a catalytic converter of the motor vehicle.

44. (New) A process for the desulfurization of an engine fuel onboard a motor vehicle, comprising:

contacting an engine fuel comprising sulfur-containing components with a selective liquid-phase adsorption material, wherein the adsorption material comprises a microorganism; and

separating the sulfur-containing components from the engine fuel, thereby obtaining a low-sulfur fuel.

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45. (Amended) A process according to Claim 44, wherein the microorganism is a bacterium.